

Time-Critical Removal Action Action Memorandum

Connection of Two Properties to the City of Grayling Municipal Water Supply Camp Grayling Army Airfield, MI

Perfluorooctane Sulfonic Acid (PFOS) and
Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

November 2019

Prepared for:



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I. Purpose

The purpose of this Action Memorandum is to document the approval and decision by the Army National Guard (ARNG) Installation and Environment Division (ARNG-IE) to conduct a Time-Critical Removal Action (TCRA) in response to the release of perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic Acid (PFOA) from operations associated with Grayling Army Airfield (GAAF), a portion of Camp Grayling Joint Maneuver Training Center (JMTC), located in Crawford County, Michigan (**Appendix A – Figure 1**). The chosen removal action for three private wells located on two properties in the City of Grayling is to provide an alternate water supply through bottled water or connect to the City of Grayling Municipal Water Supply.

This memorandum rescinds and cancels the Time Critical Removal Action memorandum signed by (COL) William Myer on 30 July 2019, and the Time Critical Removal Action memorandum signed by COL William Myer on 19 July 2019.

Based on ARNG-IE response actions conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and State of Michigan sampling efforts, PFOS and PFOA have been detected in groundwater at GAAF and in off-installation drinking water wells west, south, and east of the installation. Based on these preliminary efforts, it appears that PFOS and/or PFOA attributable to ARNG operations at GAAF are impacting drinking private drinking water wells in the City of Grayling. Drinking water for property owners to the north of North Down River Road and to the west of GAAF are typically supplied by shallow private wells; PFOS and PFOA above United States (US) Environmental Protection Agency (USEPA) Health Advisory of 70 parts per trillion (ppt) have been detected in several of these private wells.

As discussed further in **Section B.1**, investigation efforts are underway to evaluate PFOS and PFOA in groundwater in and around GAAF. The ARNG is completing a CERCLA Site Inspection (SI) to evaluate presence or absence of PFOS and PFOA in groundwater at potential PFOS and PFOA release areas located within GAAF and at the GAAF installation boundary. Additionally, Michigan Department of Environment, Great Lakes, and Energy (EGLE) has been conducting off-installation private drinking water well testing and groundwater sampling.

This Action Memorandum is issued in accordance with and satisfies the requirements of CERCLA, Title 42 United States Code (USC) § 9601 et seq., as further implemented by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 Code of Federal Regulations (CFR) Part 300. This Action Memorandum is also consistent with *Superfund Removal Guidance for Preparing Action Memoranda* (USEPA, 2009) and *Army Decision Document Guidance* (US Army, 2018).

II. Site Conditions and Background

A. Site Description

1. Physical Location

GAAF is a part of Camp Grayling, which is located near the City of Grayling, Michigan and covers portions of Crawford, Kalkaska, and Otsego counties (**Appendix A - Figure 1**). The JMTC is divided by Interstate Highway 75 and is approximately 200 miles northwest of Detroit and 80 miles south of Michigan's Upper Peninsula.

Camp Grayling is the National Guard's largest training post. Features of Camp Grayling include training facilities and support services for the ARNG, Air National Guard, US Army, US Army Reserve units, and allied forces. The installation is located in the north-central portion of the Lower

Peninsula and is bisected by the Au Sable River into two areas: the North Post and the South Post. GAAF is located on the North Post of Camp Grayling.

GAAF occupies 923 acres in the North Post of JMTC, nearest to the town of Grayling residential and commercial areas, and near the Au Sable River. EGLE, formerly known as the Michigan Department of Environmental Quality, has defined an Expanded Investigation Area surrounding GAAF. The GAAF and Expanded Investigation Area are the focus of this Action Memorandum.

2. Site Description

GAAF supports both public and military airport use. Private lands and residences abut portions of the GAAF, including the City of Grayling, located east and southeast of the installation. Numerous residences that are occupied seasonally and permanently are present along the banks of the Au Sable River, which surrounds GAAF. The Au Sable River is heavily used for recreational activities including swimming, canoeing, and fishing. Light industrial and heavy industrial zoning are found in portions of the City of Grayling and Grayling Township. These zonings apply to manufacturing or value-added activities (MDMVA, 2007).

3. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

At GAAF, based on the recent SI work, the presence of PFOS/PFOA in groundwater confirms a release of a pollutant or contaminant has occurred. Although delineation of PFOS/PFOA in groundwater has not been completed, results of groundwater investigations indicate that PFOS and/or PFOA attributable to historical operations at GAAF have been detected in groundwater above the unacceptable risk level of 400 ppt and are migrating or are likely to migrate toward three drinking water wells, where sampling has confirmed PFOS/PFOA concentrations in drinking water above USEPA's Health Advisory of 70 ppt. Therefore, the ARNG will take appropriate removal action under CERCLA, as identified in this Action Memorandum, to protect human health.

4. National Priorities List Status

Camp Grayling is not listed on the National Priorities List; has not received nor is it expected to receive a Hazard Ranking System rating; and will not be referred to the site assessment program. The ARNG-ILE is performing this work at GAAF as the lead agency under CERCLA and Executive Order 12580.

B. Other Actions to Date

1. Previous Actions

GAAF – Residential Well Sampling

Drinking water samples from private drinking water wells have been tested for PFOS and PFOA. Between May and June 2017, 186 private well samples were collected by the Michigan Department of Military and Veterans Affairs (MDMVA). Beginning in June 2019, EGLE took over the private drinking water well sampling efforts. As of April 2019, 687 drinking water samples were tested. PFOS and/or PFOA were detected in 232 samples, of which 17 samples contained PFOS+PFOA above the USEPA Health Advisory of 70 ppt (**Appendix A - Figure 2**). All sample exceedances were located around the southern boundary of GAAF (Michigan, 2019).

EGLE has led drinking water sampling efforts for off-installation potable drinking water. The sampling, analytical methods and results are compatible with ARNG's methods and results;

therefore, the sampling results have been considered and relied upon by ARNG during its response actions.

2. Current Actions

CERCLA Investigations

The ARNG is addressing PFOS and PFOA releases associated with Camp Grayling, following the CERCLA process. In 2018, ARNG completed a Preliminary Assessment (PA) Report for PFOS and PFOA at Camp Grayling. As part of the PA, ARNG completed a records review, site visit, interviews, and visual site inspection. No environmental samples were collected as part of the PA. At the GAAF, five Areas of Interest (AOIs) were identified as potential PFOS and PFOA sources (AECOM, 2018).

ARNG is completing an SI to determine the presence or absence of PFOS and PFOA in soil and groundwater at the five AOIs identified within the boundaries of the GAAF. To date, off-installation sampling has been performed by EGLE. Results from on-installation sampling indicate that 11 groundwater samples, located at the GAAF installation boundary and downgradient of the five AOIs, contained PFOS, PFOA, or PFOS+PFOA in excess of 400 ppt. PFOS+PFOA concentrations at the boundary are likely attributable to ARNG activities at the GAAF.

This TCRA Action Memorandum addresses the drinking water locations shown on **Appendix A - Figure 3**, named "TCRA Focus Area". The TCRA Focus Area includes drinking water wells at two properties (three wells) within the City of Grayling with PFOS+PFOA concentrations above the USEPA Health Advisory of 70 ppt. The remaining 14 properties, located within the Township of Grayling, are addressed in a separate TCRA Action Memorandum.

C. State and Local Authorities' Role

State and local authorities involved at Camp Grayling include: EGLE, District Health Department #10, City of Grayling, Department of Health and Human Services, Department of Natural Resources, and Michigan Department of Agriculture and Rural Development. The ARNG has coordinated efforts relating to its CERCLA PA/SI with these state and local authorities.

1. State and Local Actions to Date

As of 25 April 2019, a total of 1,043 samples were collected off-installation by the EGLE, 687 of which were drinking water samples, and the remaining samples were from groundwater. Of the 687 drinking water samples, 17 exceeded the USEPA Health Advisory. These exceedances are represented on **Appendix A - Figure 2**.

2. Potential for Continued State/Local Response

The EGLE reports that it plans to continue to monitor new residential sampling requests and contact residents to set up sampling dates and times. The ARNG will continue to coordinate its CERCLA actions with EGLE as appropriate.

III. Threat to Public Health or Welfare and Statutory and Regulatory Authorities

A. Threat to Human Health

In October and December of 2016, Michigan Army National Guard (MIARNG) collected groundwater samples from the monitoring wells immediately downgradient of an active

trichloroethylene groundwater treatment system and analyzed them for 23 per- and polyfluoroalkyl substances (PFAS), including PFOS and PFOA. PFOS and/or PFOA were detected in groundwater samples ranging from 16 ppt to 110 ppt (Amec Foster Wheeler, 2017).

Groundwater was sampled along the downgradient boundaries of GAAF by MIARNG in March and August of 2017 (Amec Foster Wheeler, 2017). PFOS and/or PFOA were detected in groundwater at 11 of the 38 boundary locations; additionally, PFOS and PFOA were detected in groundwater from a well in the west-central area of the airfield (**Appendix A - Figure 2**). The highest detection in groundwater was PFOS, with a concentration of 2,500 ppt at 45 feet below ground surface along the southeastern installation boundary, upgradient of drinking water receptors. PFOS and/or PFOA were not detected in groundwater samples collected from the north-central area of GAAF (Amec Foster Wheeler, 2017).

The ARNG identified potential threat to human health due to the presence of PFOS/PFOA from operations at the GAAF above an unacceptable risk level in groundwater that is migrating or likely migrating to private drinking water wells off-installation. Exceedances in drinking water of the USEPA Health Advisory have also been confirmed for off-installation properties. Based on the site-specific circumstances, a TCRA is warranted to address potential exposure to PFOS/PFOA in drinking water, where sampling of three private drinking water wells have exceeded the USEPA Health Advisory. In accordance with the NCP (40 CFR § 300.415(b)(2)), the following factors warrant this TCRA:

- i. "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants" and
- ii. "Actual or potential contamination of drinking water supplies or sensitive ecosystems."

B. Statutory and Regulatory Authorities

PFOS/PFOA are not identified as hazardous substances as determined by CERCLA; however, they may be addressed under CERCLA and the NCP as pollutants and/or contaminants. The concentrations of PFOS/PFOA detected in the groundwater migrating or likely migrating to the private drinking water wells at unacceptable risk levels pose a potential threat to human health based on concentrations in surrounding groundwater. The TCRA presented in this action memorandum is taken in accordance with 40 CFR §§ 300.415(b)(1), (b)(2)(i) & (ii), and (b)(3).

IV. Proposed Removal Action and Estimated Costs

A. Proposed Action – Provision of Bottled Water and Connection to the City of Grayling Municipal Water Supply

1. Description

The Removal Action Objective (RAO) of this TCRA is to prevent unacceptable risk to human health posed by PFOS/PFOA in groundwater above unacceptable risk levels migrating or likely migrating toward private drinking water wells through provision of an alternative water supply to the property owners, where PFOS/PFOA levels in drinking water are above the USEPA Health Advisory of 70 ppt. Water samples collected from the municipal water supply confirm that PFOS+PFOA concentrations in the municipal water supply are less than the USEPA Drinking Water Health Advisory of 70 ppt. This proposed action would meet the RAO by providing bottled water and/or connection to the municipal water for the three affected wells (**Appendix A - Figure 3**). The following tasks are associated with this Proposed Action Option:

- Municipal Water Connection
- Well Abandonment

- Bottled Water Supply

The two properties (that contain three wells) would be connected to the existing City of Grayling municipal water supply, and the impacted private drinking water wells would be abandoned in accordance with EGLE regulations. Bottled water would be provided until the affected properties are connected to the municipal water, or if property owners choose not to be connected to municipal water.

2. Contribution to Remedial Performance

The ARNG is in the process of completing its SI for GAAF; however, the removal actions will eliminate exposure to drinking water with levels of PFOS+PFOA above the USEPA Health Advisory by providing bottled water and connecting the affected properties to the City of Grayling municipal water supply. The ARNG will continue to conduct response actions in accordance with CERCLA, consistent with the NCP to address release(s) of PFOS+PFOA from Department of Defense activities at GAAF.

3. Project Schedule

Assuming logistics (i.e., utility clearances, rights of entry, etc.) are expedited, it is anticipated that it would take approximately six months to achieve the RAO.

4. Estimated Costs

The estimated cost of this proposed action, which includes bottled water supply, well abandonment, and municipal water connections to two properties with PFOS/PFOA in drinking water above the USEPA Health Advisory of 70 ppt in the City of Grayling, is approximately \$750,000.

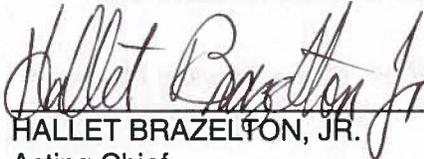
V. Public Participation

The ARNG maintains close communications with the local community and regulators. Several public meetings have been conducted. As part of the outreach and investigation activities, Army personnel have also met with individuals to explain the on-going work. A public comment period of no less than 30 days will be held for this TCRA, in accordance with 40 CFR § 300.820(b)(2).

VI. Recommendation and Signature

This Action Memorandum documents the decision for the removal action identified herein to address PFOS/PFOA in three private drinking water wells in the City of Grayling and was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the administrative record file for the site. Conditions at the site meet the NCP section 300.415(b)(2) criteria for determining that the proposed removal action is appropriate.

Authorizing Signature



HALLET BRAZELTON, JR.
Acting Chief
I&E, Army National Guard

Date

11-14-19

VII. References

- AECOM Technical Services, Inc. 2018. *Preliminary Assessment Report, Camp Grayling, Michigan, Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites ARNG Installations, Nationwide Contract No. W912DR-12-D-0014/W912DR17F0192.*
- Amec Foster Wheeler. 2017. *PFCs Investigation – Camp Grayling Airfield, Grayling, Michigan, Amec Foster Wheeler Project No: 3310165033.* 25 September 2017
- Michigan, 2019. "PFAS Response Taking Action, Protecting Michigan – Grayling Army Airfield". https://www.michigan.gov/pfasresponse/0,9038,7-365-86511_82704_84187---,00.html
Updated 17 January 2019. Accessed 8 February 2019.
- Michigan Department of Military and Veterans Affairs (MDMVA). 2007. *Camp Grayling Maneuver Training Center Integrated Natural Resources Management Plan (2007-2011).* January 2007.
- US Army, 2018. *Army Decision Document Guidance.* June 2018.
- USEPA, 2009. *Superfund Removal Guidance for Preparing Action Memoranda.* September 2009.

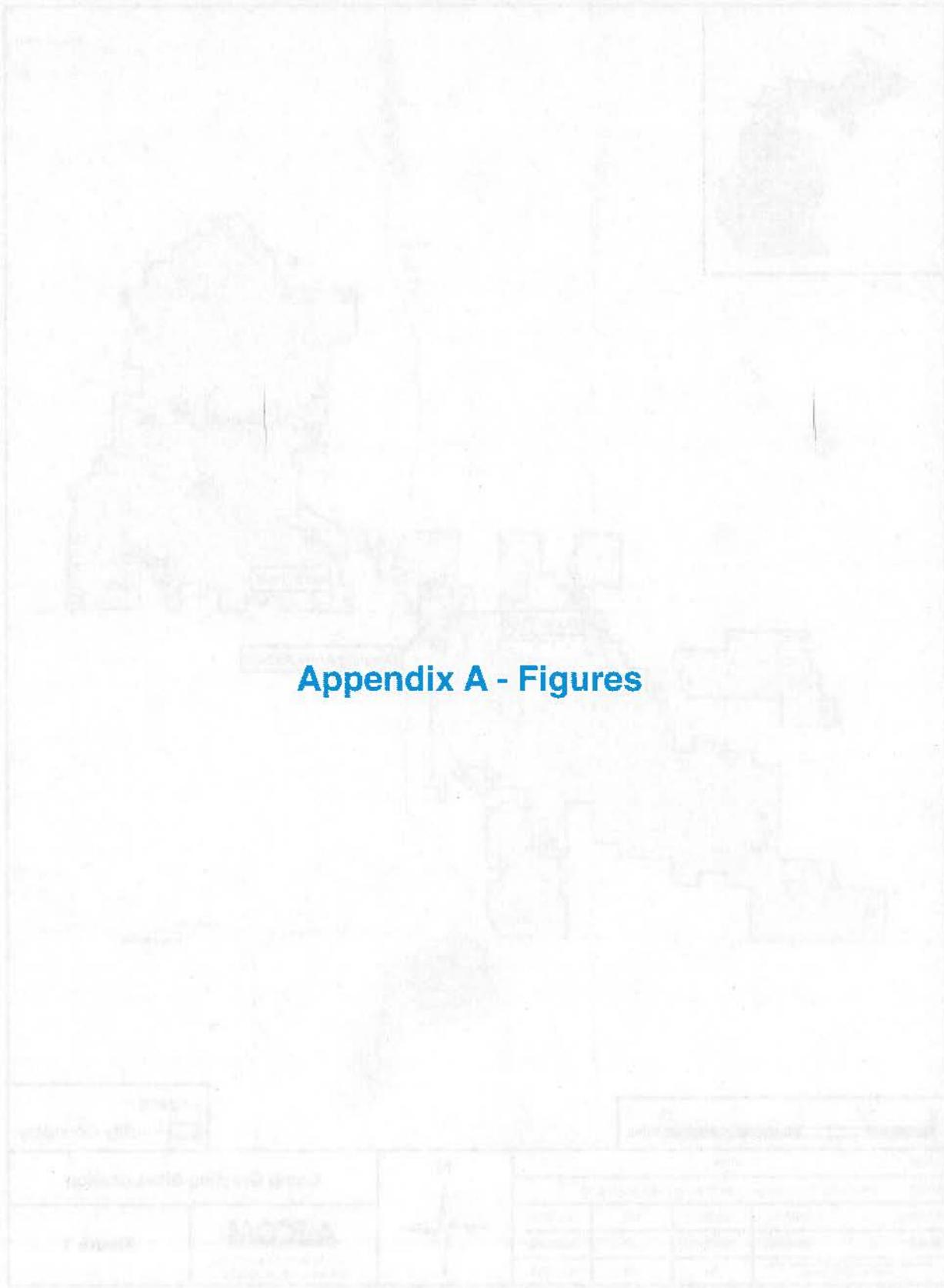
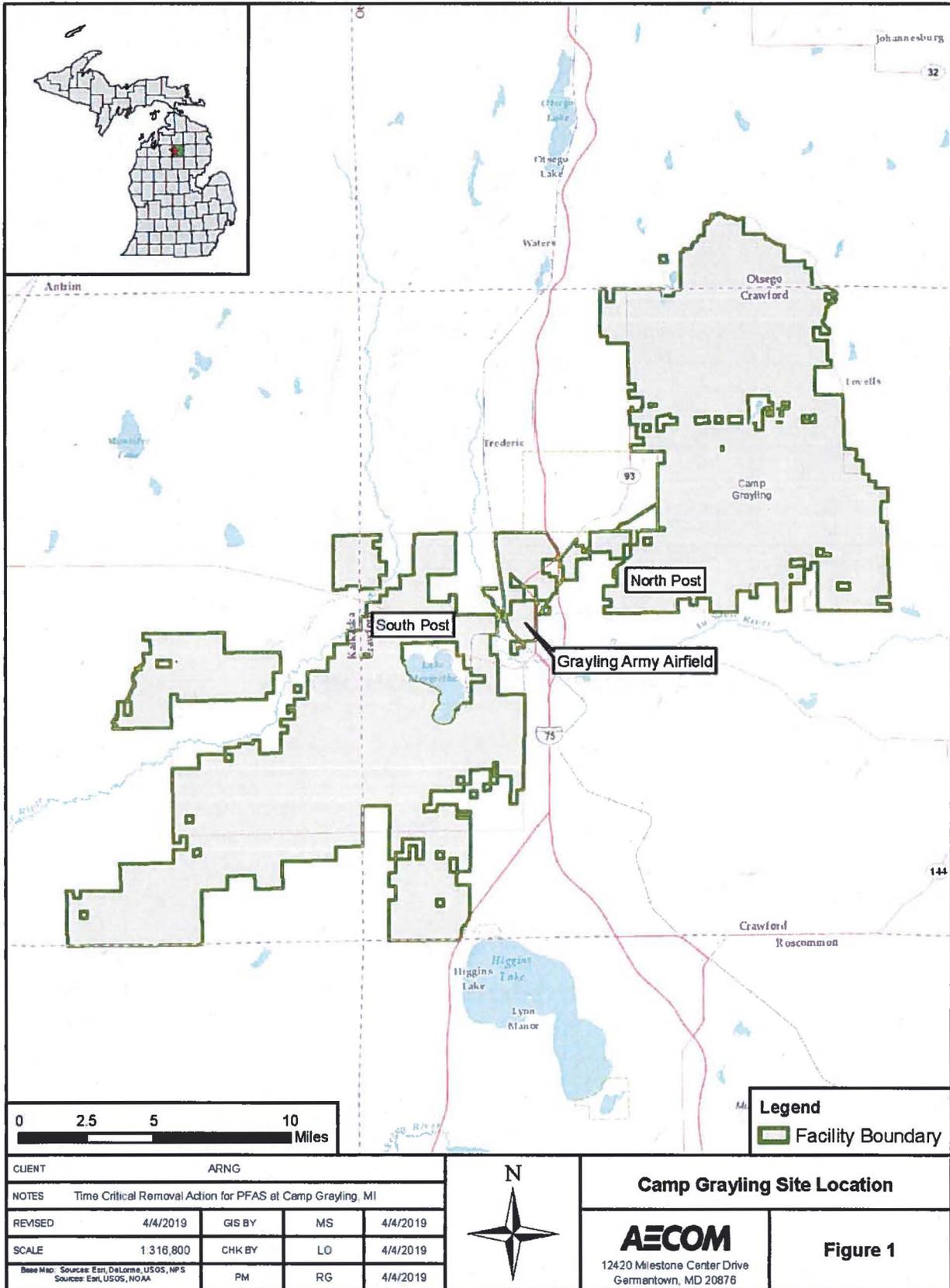


Figure 1: Camp Grayling Site Location



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Figure 2: PFOS+PFOA Residential Drinking Water Results
 (Source: EGLE; updated by AECOM to include revised sample quantities as of April 25, 2019)

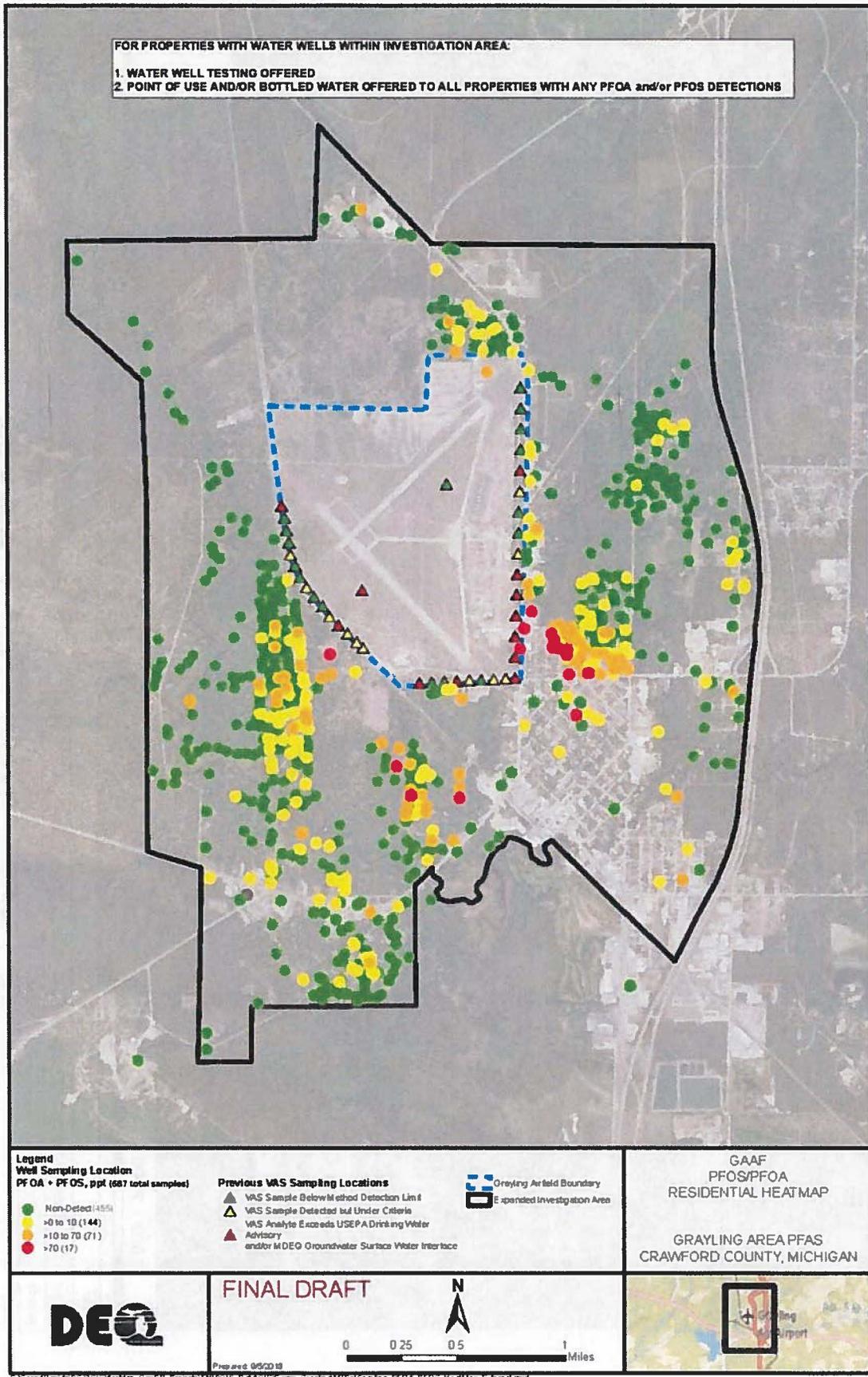
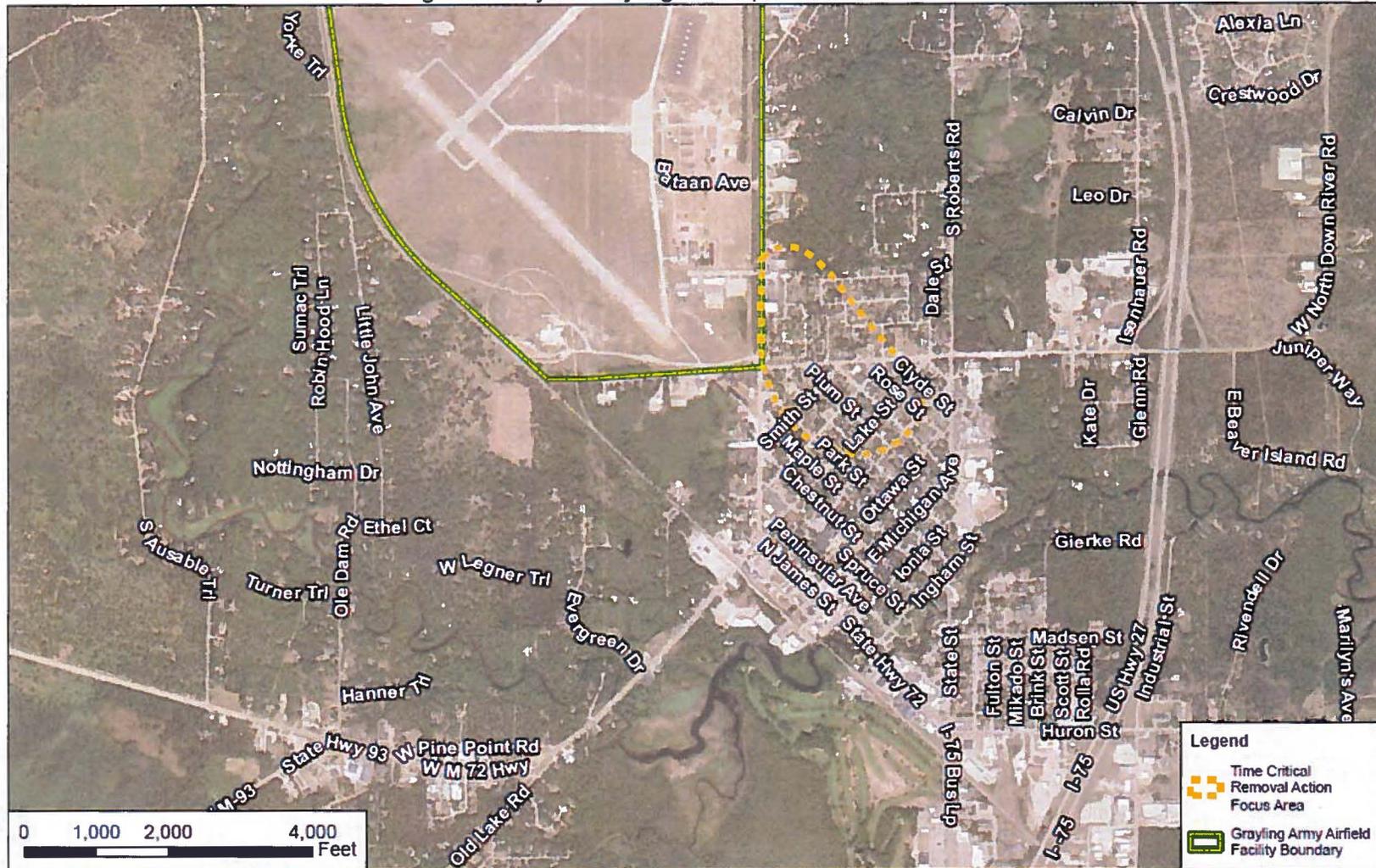


Figure 3: City of Grayling Municipal TCRA Focus Area



CLIENT	ARNG			
PROJECT	Time Critical Removal Action for PFAS at Camp Grayling, MI			
REVISED	8/29/2018	GIS BY	MS	8/28/2019
SCALE	1:24,000	CHK BY	LO	8/29/2019
Base Map: Source: Esri, DeLorme, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community	PM	RG	8/28/2019	



TITLE	Grayling Time Critical Removal Action Focus Area	
AECOM	12420 Milestone Center Drive Germantown, MD 20876	Figure 3

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